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Substitute for form 1449B/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet **Page 1** of **10**

### Complete If Known

Application Number	To be assigned
Filing Date	Herewith
First Named Inventor	Cech, Thomas R.
Group Art Unit	To Be Assigned
Examiner Name	To Be Assigned

Attorney Docket Number **015389-002990US**

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code <sup>2</sup> (if known)		
JW	A	3,817,837		Tanenholz et al.	06-18-74
JW	B	3,850,752		Schuurs et al.	11-26-74
JW	C	3,939,350		Kronick et al.	02-17-76
JW	D	3,996,345		Ullman et al.	12-01-76
JW	E	4,275,149		Litman et al.	06-23-81
JW	F	4,277,437		Maggio	07-07-81
JW	G	4,366,241		Tom et al.	12-28-82
JW	H	4,683,195		Mullis et al.	07-28-87
JW	I	4,683,202		Mullis	07-28-87
JW	J	4,816,567		Cabilly et al.	03-28-89
JW	K	4,985,188		Mullis et al.	10-23-90
JW	L	5,489,508		West et al.	02-06-96
JW	M	5,583,016		Villeponteau et al.	12-10-96
JW	N	5,747,317		Cao	05-05-98
JW	O	5,770,422		Collins	06-23-98
JW	P	8,093,809		Cech, et al.	07/25/00
JW	Q	8,258,535	B1	Villeponteau et al.	07-10-01
JW	R	8,261,556	B1	Weinrich et al.	07-17-01
JW	S	8,261,836	B1	Cech et al.	07-17-01

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		Office <sup>3</sup>	Number <sup>4</sup>		
			Kind Code <sup>5</sup> (if known)		
JW	T	JP	09154575-A		06-17-97
JW	U	PCT	WO 83/23572		11/93
JW	V	PCT	WO 85/13382		5/95
JW	W	PCT	WO 96/01855		01-25-96
JW	X	PCT	WO 96/12811		05-02-96
JW	Y	PCT	WO 96/19580		06-27-96
JW	Z	PCT	WO 96/40868		12-19-96
JW	AA	PCT	WO 98/01542		01-15-98
JW	AB	PCT	WO 98/01543		01-15-98
JW	AC	PCT	WO 98/07838		03-05-98
JW	AD	PCT	WO 98/08938		02-28-98

Examiner Signature	<i>John W. Herewith</i>	Date Considered	<i>April 9, '04</i>
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Sheet	Page 2	of	10	Attorney Docket Number	015389-002990US

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MM	AE	PCT	WO 98/21343			05-22-98		
MM	AF	PCT	WO 98/23759			06-98		
MM	AG	PCT	WO 98/37181			08-27-98		
MM	AH	PCT	WO 98/45450			10-15-98		
MM	AI	PCT	WO 98/59040			12-30-98		
MM	AJ	PCT	WO 99/01560			01-14-99		

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MM	AK	1994 Genome Issue of <i>Science</i> (265:1981f)					
MM	AL	Anderson and Young, "Quantitative Filter Hybridization" in <i>Nucleic Acid Hybridization</i> pp73-111 (1985)					
MM	AM	Ausubel et al., <i>Current Protocols in Molecular Biology</i> , John Wiley & Sons, New York NY (1989)					
MM	AN	Autexier et al., "Reconstitution of human telomerase activity and identification of a minimal functional region of the human telomerase RNA," (1996) <i>EMBO J.</i> 15:5928					
MM	AO	Autexier, C. et al, "Telomerase and cancer: revisiting the telomere hypothesis," <i>Trends in Biochemical Sciences</i> , 10 (21): 387-391 (1996).					
MM	AP	Auxerier and Greider, "Functional reconstitution of wild-type and mutant <i>Tetrahymena</i> telomerase," (1994) <i>Genes Develop.</i> , 8:563					
MM	AQ	Avilion, A., "Characterization and expression of human telomerase," <i>Dissertation Abstracts International</i> , 56 (11) 5930-B (1996).					
MM	AR	Barinaga, M., "The Telomerase Picture Fills In," <i>Science</i> 276:528-529 (1997).					
MM	AS	Berger and Kimmel, <i>Guide to Molecular Cloning Techniques</i> , Meth. Enzymol., vol. 152, Academic Press, San Diego CA (1987)					

Examiner Signature	<i>M. Salwicka</i>	Date Considered	<i>April 9, '04</i>
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<i>dkf</i>	AT	Biessmann et al., "Addition of Telomere-Associated Het DNA Sequences "Heals" Broken Chromosome Ends in <i>Drosophila</i> ," <i>Cell</i> 61:663 (1990).	
<i>dkf</i>	AU	Bitter et al., "Expression and secretion vectors for yeast," <i>Meth Enzymol.</i> , (1987) 153:518	
<i>dkf</i>	AV	Blackburn and Chiou, "Non-nucleosomal packaging of a tandemly repeated DNA sequence at termini of extrachromosomal DNA coding for rRNA in <i>Tetrahymena</i> ," (1981) <i>Proc. Natl. Acad. Sci.</i> , 78:2263	
<i>dkf</i>	AW	Blackburn and Gall, "A tandemly repeated sequence at the termini of the extrachromosomal ribosomal RNA genes in <i>Tetrahymena</i> ," (1978) <i>J. Mol. Biol.</i> , 120:33	
<i>dkf</i>	AX	Blackburn, "Telomerases," (1992) <i>Ann. Rev. Biochem.</i> , 61:113	
<i>dkf</i>	AY	Bodnar et al., "Extension of Life-Span by Introduction of Telomerase into Normal Human Cells," (1998) <i>Science</i> , 279:349	
<i>dkf</i>	AZ	Bradford, "A Rapid and Sensitive method for the Quantitation of Microgram Quantities of Protein Utilizing the Principle of Protein-Dye Binding," (1976) <i>Anal. Biochem.</i> , 72:248	
<i>dkf</i>	BA	Braunstein et al., "Transcriptional silencing in yeast is associated with reduced nucleosome acetylation," (1993) <i>Genes Develop.</i> , 7:592	
<i>dkf</i>	BB	Calvio et al., "Identification of hnRNP P2 as TLS/FUS using electrospray mass spectrometry," (1995) <i>RNA</i> , 1:724	
<i>dkf</i>	BC	Caruthers et al., "New chemical methods for synthesizing polynucleotides," (1980) <i>Nucleic Acids Res. Symp. Ser.</i> , 215:223	
<i>dkf</i>	BD	Chan and Tye, "Organization of DNA sequences and replication origins at yeast telomeres," (1983) <i>Cell</i> , 33:563	
<i>dkf</i>	BE	Colbere-Garapin et al., "A new dominant hybrid selective marker for higher eukaryotic cells," (1981) <i>J. Mol. Biol.</i> , 150:1	
<i>dkf</i>	BF	Cole et al., "The EBV-hybridoma technique and its application to human lung cancer," <i>Monoclonal Antibodies and Cancer Therapy</i> . Alan R. Liss Inc., New York NY 77-96 (1985)	
<i>dkf</i>	BG	Collins et al., "Purification of <i>Tetrahymena</i> telomerase and cloning of genes encoding the two protein components of the enzyme," (1995) <i>Cell</i> , 81:677	
<i>dkf</i>	BH	Collins, K., "Structure and Function of Telomerase," <i>Curr. Op. Cell. Biol.</i> 8:374-380 (1996).	

Examiner Signature	<i>dkf</i>	Date Considered	April 9, '04
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Sheet	Page 4	of	10	Filing Date	Herewith
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				Group Art Unit	To Be Assigned
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OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS				
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		
MR	BI	Conrad et al., "RAP1 protein interacts with yeast telomeres in vivo: Overproduction alters telomere structure and decreases chromosome stability," (1990) <i>Cell</i> , 63:739		T <sup>2</sup>
MR	BJ	Coombs, <i>Dictionary of Biotechnology</i> , Stockton Press, New York NY (1994)		
MR	BK	Cote et al., "Generation of human monoclonal antibodies reactive with cellular antigens," (1983) <i>Proc. Natl. Acad. Sci.</i> , 80:2026		
MR	BL	Counter et al., "The catalytic subunit of yeast telomerase," (1997) <i>Proc. Natl. Acad. Sci.</i> , 94:9202		
MR	BM	Creighton, <i>Proteins, Structures and Molecular Principles</i> , WH Freeman and Co, New York NY [1983].		
MR	BN	Dieffenbach and Dveksler, <i>PCR Primer, a Laboratory Manual</i> , Cold Spring Harbor Press, Plainview NY (1995)		
MR	BO	Duplaa et al., "Quantitative analysis of polymerase chain reaction products using biotinylated dUTP incorporation," (1993) <i>Anal. Biochem.</i> , 212:229		
MR	BP	Fang et al., "Oxytricha telomere-binding protein: separable DNA-binding and dimerization domains of the α-subunit," <i>Genes Develop.</i> 7:870 (1993) and Gray et al., (1991) <i>Cell</i> 67:807		
MR	BR	Feng et al., "The RNA Component of Human Telomerase," (1995) <i>Science</i> , 269:1236		
MR	BS	GenBank Accession No. AA264298		
MR	BT	Genbank accession no. AA299878		
MR	BU	Gilley et al., "Altering specific telomerase RNA template residues affects active site function," (1995) <i>Genes Develop.</i> , 9:2214		
MR	BV	Gottschling and Cech, "Chromatin Structure of the Molecular Ends of Oxytricha Mononuclear DNA: Phased Nucleosomes and a Telomeric Complex," (1984) <i>Cell</i> , 38:501		
MR	BW	Gottschling and Zakian, "Telomere proteins: specific recognition and protection of the natural termini of Oxytricha macronuclear DNA," (1986) <i>Cell</i> 47:195		

Examiner Signature	MR Galicka	Date Considered	April 9, '04
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drf	BX	Grant et al., Meth Enzymol., (1987) 153:516-544		
drf	BY	Greenwood et al., "Phylogenetic relationships within the class oligohymenophorea, phylum ciliophora, inferred from the complete small subunit rRNA gene sequences of <i>Colpidium campylum</i> , <i>Glauxoma chattoni</i> , and <i>Opisthontecta henneguyi</i> ," (1991) J. Mol. Evol., 3:163		
drf	BZ	Greider and Blackburn, "A telomeric sequence in the RNA of Tetrahymena telomerase required for telomere repeat synthesis," (1989) Nature, 337:331		
drf	CA	Greider and Blackburn, "Identification of a specific telomere terminal transferase activity in Tetrahymena extracts," (1985) Cell, 43:405		
drf	CB	Greider, "Telomerase is processive," (1991) Mol. Cell. Biol., 11:4572		
drf	CC	Greider, "Telomere Length Regulation," (1996) Ann. Rev. Biochem., 65:337		
drf	CD	Hampton et al., Serological Methods a Laboratory Manual, APS Press, St Paul MN (1990)		
drf	CE	Harrington et al., "A Mammalian Telomerase-Associated Protein," (1997) Science, 275:973		
drf	CF	Harrington et al., "Human telomerase contains evolutionarily conserved catalytic and structural subunits," (1997) Genes Dev., 11:3109		
drf	CG	Hartman and Mulligan, "Two dominant-acting selectable markers for gene transfer studies in mammalian cells," (1988) Proc. Natl. Acad. Sci., 85:8047		
drf	CH	Henderson and Blackburn, "An overhanging 3' terminus is a conserved feature of telomeres," (1989) Mol Cell. Biol., 9:345		
drf	CI	Hillier, et al., Direct Submission to GenBank, EST Database, Accession No. W70315, Available Oct. 17, 1996.		
drf	CJ	Horn et al., "Synthesis of oligonucleotides on cellulose. Part II: design and synthetic strategy to the synthesis of 22-oligodeoxynucleotides coding for gastric inhibitory polypeptide (GIP)," (1980) Nucleic Acids Res. Symp. Ser., 225-232		
drf	CK	Hudson et al., "An STS-based map of the human genome," (1995) Science, 270:1945		
drf	CL	Huse et al., "Generation of a large combinatorial library of the immunoglobulin repertoire in phage lambda," (1989) Science, 246:1275		

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<i>dkf</i>	CM	Kilian et al., "Isolation of a candidate human telomerase catalytic subunit gene, which reveals complex splicing patterns in different cell types," (1997) <i>Hum. Mol. Genet.</i> , 6:2011		
<i>dkf</i>	CN	Kipling and Cooke, "Hypervariable ultra-long telomeres in mice," (1990) <i>Nature</i> 347:400		
<i>dkf</i>	CO	Klobutcher et al., "All gene-sized DNA molecules in four species of hypotrichs have the same terminal sequence and an unusual 3' terminus," (1981) <i>Proc. Natl. Acad. Sci.</i> , 78:3015		
<i>dkf</i>	CP	Koehler and Milstein, "Continuous cultures of fused cells secreting antibody of predefined specificity," (1975) <i>Nature</i> 256:495		
<i>dkf</i>	CQ	Kosbor et al., "The production of monoclonal antibodies from human lymphocytes," (1983) <i>Immunol. Today</i> 4:72		
<i>dkf</i>	CR	Lamond and Sproat, (1994) "Isolation and Characterization of Ribonucleoprotein Complexes," pp103-140		
<i>dkf</i>	CS	Lamond et al., "Probing the structure and function of U2 snRNP with antisense oligonucleotides made of 2'-OMe RNA," (1989) <i>Cell</i> , 58:383		
<i>dkf</i>	CT	Lendvay et al., "Senescence mutants of <i>Saccharomyces cerevisiae</i> with a defect in telomere replication identify three additional EST genes," (1996) <i>Genetics</i> , 144		
<i>dkf</i>	CU	Lingler et al., "Purification of telomerase from <i>Euplotes adeiculatus</i> : requirement of a primer 3' overhang," (1996) <i>Proc. Natl. Acad. Sci.</i> , 93:10712		
<i>dkf</i>	CV	Lingler et al., "Reverse transcriptase motifs in the catalytic subunit of telomerase," (1997) <i>Science</i> , 276:561		
<i>dkf</i>	CW	Lingner et al., "Telomerase RNAs of different ciliates have a common secondary structure and a permuted template," (1994) <i>Genes Develop.</i> , 8:1984		
<i>dkf</i>	CX	Lingner et al., "Telomerase and DNA End Replication: No Longer a Lagging Strand Problem?," (1995) <i>Science</i> 269:1533		
<i>dkf</i>	CY	Lowy et al., "Isolation of transforming DNA: Cloning the hamster aprt gene," (1980) <i>Cell</i> , 22:817		
<i>dkf</i>	CZ	Lundblad, V. et al., "RNA-dependent polymerase motifs in EST1: tentative identification of a protein component of an essential yeast telomerase," <i>Cell</i> , 60 (5):29-30 (1990).		
<i>dkf</i>	DA	Lustig and Petes, Identification of yeast mutants with altered telomere structure," (1986) <i>Proc. Natl. Acad. Sci.</i> , 83:1398		

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Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T <sup>2</sup>
dkf	DB	Lustig, A., "The Identification of Telomerase Subunits: Catalysing Telomere Research," <i>Trends Cell. Biol.</i> 7:299-302 (1997).		
dkf	DC	Maddox et al., "Elevated serum levels in human pregnancy of a molecule immunochemically similar to eosinophil granule major basic protein," (1983) <i>J. Exp. Med.</i> , 158:1211		
dkf	DD	Makarov et al., "Nucleosomal Organization of Telomere-Specific Chromatin in Rat," (1993) <i>Cell</i> , 73:775		
dkf	DE	McEachern and Blackburn, "runaway telomere elongation caused by telomerase RNA gene mutation," (1995) <i>Nature</i> , 376:403		
dkf	DF	Melby et al., "Quantitative measurement of human cytokine gene expression by polymerase chain reaction," (1993) <i>J. Immunol. Meth.</i> , 159:235		
dkf	DG	Merrifield, "Solid phase peptide synthesis. I. The synthesis of a tetrapeptide," (1963) <i>J. Am. Chem. Soc.</i> , 85:2149		
dkf	DH	Meyerson et al., "hEST2, the Putative Human Telomerase Catalytic Subunit Gene, Is Up-Regulated in Tumor Cells and during Immortalization," (1997) <i>Cell</i> , 90:785		
dkf	DI	Murray, <i>In McGraw Hill Yearbook of Science and Technology</i> , (1992) McGraw Hill, New York NY, pp 191-196		
dkf	DJ	Nakamura et al., "Telomerase Catalytic Subunit Homologs from Fission Yeast and Human," (1997) <i>Science</i> , 277:955		
dkf	DK	Nakayama et al., "Cloning of a Candidate cDNA Encoding a Proteinaceous Component of Mammalian Telomerase," <i>Mol. Biol. Cell Abstracts Supp.</i> 7 p. 286a, scln. 1664 (1996).		
dkf	DL	Nakayama et al., "TLP1: A Gene Encoding a Protein Component of Mammalian Telomerase Is a Novel Member of WD Repeats Family," (1997) <i>Cell</i> , 88:875		
dkf	DM	Nielsen et al., (1993) "Peptide nucleic acids" (PNAs): Potential antisense and anti-gene agents," <i>Anticancer Drug Des.</i> , 8:53		
dkf	DN	Oka et al., "Inverted terminal repeat sequence in the macronuclear DNA of <i>Styloynchia postulata</i> ," (1980) <i>Gene</i> , 10:301		
dkf	DO	Olovnikov, "A theory of marginotomy: The incomplete copying of template margin in enzymic synthesis of polynucleotides and biological significance of the phenomenon," (1973) <i>J. Theor. Biol.</i> , 41:181		
dkf	DP	Orlandi et al., "Cloning Immunoglobulin variable domains for expression by the polymerase chain reaction," (1989) <i>Proc. Natl. Acad. Sci.</i> , 86:3833		

Examiner Signature	<i>M. Salvieille</i>	Date Considered	April 9, '04
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				<b>Filing Date</b>	Herewith
				<b>First Named Inventor</b>	Cech, Thomas R.
				<b>Group Art Unit</b>	To Be Assigned
				<b>Examiner Name</b>	To Be Assigned
Sheet	Page 8	of	10	Attorney Docket Number	015389-002990US

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OTHER PRIORITY - NON-PATENT INFORMATION DOCUMENT		
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JKF	DQ	Prescott, "The DNA of ciliated protozoa," (1994) <i>Microbiol. Rev.</i> , 58:233
JKF	DR	Price, (1993) <i>Blood Rev.</i> , 7:127
JKF	DS	Rhodes <i>et al.</i> , "Transformation of maize by electroporation of embryos." (1995) <i>Meth. Mol. Biol.</i> , 55:121
JKF	DT	Roberge <i>et al.</i> , "A strategy for a convergent synthesis of N-linked glycopeptides on a solid support." (1995) <i>Science</i> , 269:202
JKF	DU	Romero and Blackburn, "A conserved secondary structure for telomerase RNA," (1991) <i>Cell</i> , 67:343
JKF	DV	Sambrook <i>et al.</i> , Molecular Cloning, A Laboratory Manual, Cold Spring Harbor Press, Plainview NY (1989)
JKF	DW	Sandell <i>et al.</i> , "Transcription of yeast telomere alleviates telomere position effect without affecting chromosome stability," (1994) <i>Proc. Natl. Acad. Sci.</i> , 91:12061
JKF	DX	Sanger <i>et al.</i> , "DNA sequencing with chain-terminating inhibitors," <i>Proc. Natl. Acad. Sci.</i> , 74:5463 [1977].
JKF	DY	Scharf <i>et al.</i> , "Heat stress promoters and transcription factors," (1994) <i>Result Probl. Cell Differ.</i> 20:125
JKF	DZ	Shampay and Blackburn, "Generation of telomere-length heterogeneity in <i>Saccharomyces cerevisiae</i> ," (1988) <i>Proc. Natl. Acad. Sci.</i> , 85:534
JKF	EA	Sheen and Lewis, "Transposition of the LINE-like retrotransposon TART to <i>Drosophila</i> chromosome termini," (1994) <i>Proc. Natl. Acad. Sci.</i> , 91:12510
JKF	EB	Singer and Gottschling, "TLC1: Template RNA Component of <i>Saccharomyces cerevisiae</i> Telomerase," (1994) <i>Science</i> 268:404
JKF	EC	Singer, M., "Unusual Reverse Transcriptases," <i>J. Biol. Chem.</i> 270(42):24623-24626 (1995).
JKF	ED	Starling <i>et al.</i> , "Extensive telomere repeat arrays in mouse are hypervariable," (1990) <i>Nucleic Acids Res.</i> , 18:6881
JKF	EE	Swanton <i>et al.</i> , "Arrangement of Coding and Non-coding Sequences in the DNA Molecules Coding for rRNAs in <i>Oxytricha</i> sp.," (1980) <i>Chromosoma</i> 77:203

Examiner Signature	<i>McGillivray</i>	Date Considered	<i>April 9, '04</i>
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(use as many sheets as necessary)		<b>Filing Date</b>	Herewith		
Sheet	Page 9	of	10	<b>First Named Inventor</b>	Cech, Thomas R.
				<b>Group Art Unit</b>	To Be Assigned
				<b>Examiner Name</b>	To Be Assigned
				<b>Attorney Docket Number</b>	015389-002990US

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drw	EF	Tommerup et al., "Unusual chromatin in human telomeres," (1994) <i>Mol. Cell. Biol.</i> , 14:5777		
drw	EG	Trask, "Fluorescence in situ hybridization: application in cytogenetics and gene mapping," (1991) <i>Trends Genet.</i> , 7:149		
drw	EH	Vernia et al., "Human Chromosomes: A Manual of Basic Techniques," Pergamon Press, New York NY (1988)		
drw	EI	Watson, "Origin of concatemeric T7 DNA," (1972) <i>Nature New Biol.</i> , 239:197		
drw	EJ	Weinrich et al., "Reconstitution of human telomerase with the template RNA component hTR and the catalytic protein subunit hTRT," (1997) <i>Nat. Genet.</i> , 17(4):498		
drw	EK	Wellinger et al., "Origin activation and formation of single-strand TG <sub>1,3</sub> tails occur sequentially in late S phase on a Yeast linear plasmid," (1993) <i>Mol. Cell. Biol.</i> , 13:4057		
drw	EL	Wellinger et al., "Saccharomyces Telomeres Acquire Single-Strand TG <sub>1,3</sub> Tails Late in S Phase," (1993) <i>Cell</i> 72:51		
drw	EM	Whitehead Institute/MIT Center for Genome Research, Genetic Map of the Mouse, Database Release 10, April 28, 1995		
drw	EN	Wigler et al., "Transfer of purified herpes virus thymidine kinase gene to cultured mouse cells," (1977) <i>Cell</i> , 11:223		
drw	EO	Wigler et al., "Transformation of mammalian cells with an amplifiable dominant-acting gene," (1980) <i>Proc. Natl. Acad. Sci.</i> , 77:3567		
drw	EP	Winter and Milstein, "Man-made antibodies," (1991) <i>Nature</i> , 349:293		
drw	EQ	Wright et al., "Saccharomyces telomeres assume a non-nucleosomal chromatin structure," (1992) <i>Genes Develop.</i> , 6:197		
drw	ER	Yu et al., "In vivo alteration of telomere sequences and senescence caused by mutated Tetrahymena telomerase RNAs," (1990) <i>Nature</i> , 344:126		
drw	ES	Zahler and Prescott, "Telomere terminal transferase activity in the hypotrichous ciliate <i>Oxytricha nova</i> and a model for replication of the ends of linear DNA molecules," (1988) <i>Nucleic Acids Res.</i> , 16:6953		
drw	ET	Zakian, Telomeres: Beginning to Understand the End," (1995) <i>Science</i> 270:1601		

Examiner Signature	drw/velvetex	Date Considered	April 9, '04
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(use as many sheets as necessary)		Filing Date	Herewith
		First Named Inventor	Cech, Thomas R.
		Group Art Unit	To Be Assigned
		Examiner Name	To Be Assigned
Sheet	Page 10	of	10
		Attorney Docket Number	015389-002990US

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<i>dlv</i>	EU	Zaug et al., "Catalysis of RNA Cleavage by a Ribozyme Derived from the Group I Intron of Anabaena Pre-tRNA <sup>Leu</sup> "	
<i>dlv</i>	EV	Zaug, A. J. et al., "Method for determining RNA 3' ends and application to human telomerase RNA," Nucleic Acids Research, 24 (3): 532-533 (1996).	

Examiner Signature	<i>M. S. Vlachos</i>	Date Considered	<i>April 9, '04</i>
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1

of 4

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Application Number	10/054,295
Filing Date	January 18, 2002
First Named Inventor	Cech
Art Unit	1646
Examiner Name	
Attorney Docket Number	015389-002990US

U.S. PATENT DOCUMENTS+					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code <sup>2</sup> (if known)			
MW	A1	US-5,597,697	01-28-1997	Diamond	
MW	A2	US-5,917,025	06-29-1999	Collins	
MW	A3	US-5,919,656	07-06-1999	Harrington, et al.	
MW	A4	US-6,166,178	12-26-2000	Cech et al.	
MW	A5	US-6,309,867 B1	10-30-2001	Cech et al.	
MW	A6	US-6,337,200 B1	01-08-2002	Morin	
MW	A7	US-6,475,789 B1	11-05-2002	Cech et al.	
MW	A8	US-6,810,839 B1	08-26-2003	Cech et al.	
MW	A9	US-6,817,110 B1	09-09-2003	Cech et al.	

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
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MW	B1	GB	2 317 891	A			
MW	B2	PCT	WO 84/03564	A1			
MW	B3	PCT	WO 94/17240	A1			
MW	B4	PCT	WO 98/14592	A2			
MW	B5	PCT	WO 98/14593	A2			
MW	B6	PCT	WO 99/33998	A2			
MW	B7	PCT	WO 99/38964	A2			
MW	B8	PCT	WO 00/46355	A2			

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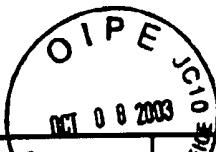
Substitute for form 1449B/PTO				Complete if Known	
				Application Number	10/054,295
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drf	C1	ADAMSON, D. et al. "Significant Telomere Shortening in Childhood Leukemia", <i>Cancer Genet. Cytogenet.</i> , 1992; pp. 204-206, Vol. 61			
drf	C2	CHIU, et al. "Replicative senescence and cell immortality: the role of telomeres and telomerase (44075)", <i>Proc. Soc. Exp. Bio. Med.</i> , 1997, pp. 99-106, Vol. 214.			
drf	C3	CHONG, L. et al. "A Human Telomeric Protein", <i>Science</i> , Dec. 1995, pp. 1663-1667, Vol. 270.			
drf	C4	COUNTER, C. et al. "Telomerase activity in human ovarian carcinoma"; <i>Proc. Natl. Acad. Sci USA</i> ; April 1994; Vol. 91; pp. 2900-2904			
drf	C5	COUNTER, C. et al. "Telomerase Activity in Normal Leukocytes and in Hematologic Malignancies" <i>Blood</i> ; May 1, 1995; pp. 2315-2320, Vol. 85, No. 9.			
drf	C6	COUNTER, C. et al. "Telomere shortening associated with chromosome instability is arrested in immortal cells which express telomerase activity", <i>The EMBO Journal</i> ; 1992, pp. 1921-1929, Vol. 11; No. 5, Oxford University Press.			
drf	C7	DE LANGE, T. et al. "Structure and Variability of Human Chromosome Ends"; <i>Molecular and Cellular Biology</i> ; February 1990; pp. 518-527, Vol. 10, No. 2.			
drf	C8	FLAVELL, R. & MATHIAS, R. "Prospects for transforming monocot crop plants", <i>Nature</i> , 12 Jan. 1984, pp. 108-109, Vol. 307.			
drf	C9	FRESHNEY, <i>Culture of Animal Cells, A Manual Basic Technique</i> , p. 4, Alan R. Liss, Inc. New York, 1983.			
drf	C10	Genbank Accession No. A46242; September 21, 1993			
drf	C11	Genbank Accession No. L38903; January 30, 1995			
drf	C12	Genbank Accession No. Q06163; November 01, 1995			
drf	C13	Genbank Accession No. S39696; October 07, 1994			
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drf	C15	GenBank Accession No. U95964; May 5, 1997			
drf	C16	GLASER, P. et al. "Bacillus subtilis genome project: cloning and sequencing of the 97 kb region from 325° to 333°" <i>Molecular Microbiology</i> , 1993, pp. 371-384, Vol. 10, No. 2.			
drf	C17	GOODMAN, R. et al. "Gene Transfer in Crop Improvement", <i>Science</i> , 3 April 1997, pp. 48-54, Vol. 236.			

Examiner Signature	drf/valdeas	Date Considered	April 9, '04
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<i>dkf</i>	C18	GREIDER, C. "Telomeres, Telomerase and Senescence"; <i>BioEssays</i> ; 1990; pp. 363-369, Vol. 12, No. 8.		T <sup>2</sup>
<i>dkf</i>	C19	HARLEY, C. "Telomere loss: Mitotic clock or genetic time bomb?" <i>Mutation Research</i> ; 1991; pp. 271-282, Vol. 256, Elsevier Science Publishers.		
<i>dkf</i>	C20	HARLEY, C. & VILLEPONTEAU, B. "Telomeres and telomerase in aging and cancer" <i>Current Opinion in Genetics and Development</i> ; 1995, pp. 249-255, Vol. 5.		
<i>dkf</i>	C21	HARLEY, C. et al. "Telomeres shorten during ageing of human fibroblasts", <i>Nature</i> , 31 May 1990; pp. 458-460, Vol. 345.		
<i>dkf</i>	C22	HASTIE, N. et al. "Telomere reduction in human colorectal carcinoma and with ageing", <i>Nature</i> , 30 August 1990, pp. 866-868, Vol. 346.		
<i>dkf</i>	C23	HEALY, K. C. "Telomere dynamics and telomerase activation in tumor progression: prospects for prognosis and therapy" <i>Oncol. Res.</i> , 1995, pp. 121-130, Vol. 7		
<i>dkf</i>	C24	HENDERSON, C. Cancer genetics gene regulates telomerase resulting in death of cancer cells; <i>Gene Therapy Weekly</i> , 11 September 1995.		
<i>dkf</i>	C25	HIYAMA, E. et. al. "Correlating telomerase activity levels with human neuroblastoma outcomes"; <i>Nature Medicine</i> ; 3 March 1995; pp. 249-255, Vol. 1, No. 3.		
<i>dkf</i>	C26	HOLTZMANN, K. et al. "Telomeric Associations and Loss of Telomeric DNA Repeats in Renal Tumors", <i>Genes, Chromosomes &amp; Cancer</i> , 1993, pp. 178-181, Vol. 6.		
<i>dkf</i>	C27	JÄHNE, A. et al. "Genetic Engineering of Cereal Crop Plants: A Review", <i>Euphytica</i> , 1995, pp. 35-44, Vol. 85, Kluwer Academic Publishers, Netherlands.		
<i>dkf</i>	C28	JOHNSON, P. et al., "Expression of Wild-Type p53 Is Not Compatible with Continued Growth of p53-Negative Tumor Cells", <i>Molecular and Cellular Biology</i> , Jan. 1991, p. 1-11, Vol. 11, No. 1.		
<i>dkf</i>	C29	JOLLIFFE, L.K. "Humanized antibodies: enhancing therapeutic utility through antibody engineering", <i>Int. Rev. Immunol.</i> , 1993, pp. 241-250, Vol. 10		
<i>dkf</i>	C30	KIM, N. et al. "Specific Association of Human Telomerase Activity with Immortal Cells and Cancer", <i>Science</i> , 23 December 1994, pp. 2011-2014, Vol. 266.		
<i>dkf</i>	C31	KLINGELHUTZ, A. et al. "Restoration of Telomeres in Human Papillomavirus- Immortalized Human Anogenital Epithelial Cells"; <i>Molecular and Cellular Biology</i> ; Feb. 1994, pp. 961-969, Vol. 14, No. 2.		
<i>dkf</i>	C32	LEWIS, A. & CROWE, J.S. "Generation of humanized monoclonal antibodies by 'best fit' framework selection and recombinant polymerase chain reaction", <i>Year Immunol.</i> , 1993, pp. 110-118, Vol. 7		
<i>dkf</i>	C33	Linking telomerase and tumors; <i>Genesis Report- Dx</i> ; 1995; Vol. 4, No. 6; Publisher Genesis Group Associates.		
<i>dkf</i>	C34	MALICKI, J. et al. "A human HOX4B regulatory element provides head-specific expression in <i>Drosophila</i> embryos", <i>Nature</i> , 23 July 1992, pp. 345-357, Vol. 358.		

Examiner Signature	<i>dkf</i>	Date Considered	April 9, '04
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449B/PTO		<i>Complete if Known</i>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i>		Application Number	10/054,295
Sheet	4	Filing Date	January 18, 2002
		First Named Inventor	Cech
		Art Unit	1646
		Examiner Name	
		Attorney Docket Number	015389-002990US
Sheet   4   of   4			

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
<i>MRF</i>	C35	NATARAJAN et al. "Major histocompatibility complex determinants select T-cell receptor alpha chain variable region dominance in a peptide-specific response." <i>Proc. Natl. Acad. Sci.</i> , Oct 1992, pp. 8874-8878, Vol. 89.	
<i>MRF</i>	C36	PASZKOWSKI, JERZY et al. "Direct gene transfer to plants," <i>The EMBO Journal</i> , 1984, pp. 2717-2722, Vol. 3, No. 12.	
<i>MRF</i>	C37	POTRYKUS, I. et al. "Direct gene transfer to cells of a graminaceous monocot", <i>Mol. Gen. Genet.</i> , 1985, pp. 183-188, Vol. 199.	
<i>MRF</i>	C38	RAYMOND, E., et al.; Agents that target telomerase and telomeres; <i>Curr. Opin. Biotechnol.</i> ; 1996; 7:583-91	
<i>MRF</i>	C39	RHYU, M.S. "Telomeres, telomerase, and immortality"; <i>J. Natl. Cancer Inst.</i> ; 21 June 1995; pp. 884-894, Vol. 87, No. 12.	
<i>MRF</i>	C40	SCHENA et al. "Parallel human genome analysis: Microarray-based expression monitoring of 1000 genes", <i>Proc. Natl. Acad. Sci.</i> , Oct. 1996, pp. 10614-10619, Vol. 93, USA.	
<i>MRF</i>	C41	SCHWARTZ, H. et al. "Telomere Reduction in Giant Cell Tumor of Bone and with Aging"; <i>Cancer Genet Cytogenet</i> ; 1993; pp. 132-138, Vol. 71, Elsevier Science Publishing Co., Inc., New York, U.S.A.	
<i>MRF</i>	C42	SMITH, J. & YEH, G. "Telomere Reduction in Endometrial Adenocarcinoma"; <i>Am. J. Obstet. Gynecol.</i> ; Dec. 1992; pp. 1883-1887, Vol. 167, No. 6	
<i>MRF</i>	C43	TAIT, J. et al. "Structure and Polymorphisms of the Human Annexin III (ANX3) Gene", <i>Genomics</i> , 1993, pp. 79-86, Vol. 18, No. 1	
<i>MRF</i>	C44	WINTER, G. & HARRIS, W. "Humanized Antibodies", <i>Trends Pharmacol. Sci.</i> , May 1993, pp. 139-143, Vol. 14.	
<i>MRF</i>	C45	WIRTH, URS et al; "Immediate-Early RNA 2.9 and Early RNA 2.6 of Bovine Herpesvirus 1 Are 3' Coterminal and Encode of Putative Zinc Finger Transactivator Protein"; <i>Journal of Virology</i> ; May 1992; pp. 2763-2772, Vol. 66, No. 5.	

Examiner Signature	<i>M. S. Cech</i>	Date Considered	<i>April 9, '04</i>
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(3)



Substitute for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)				<b>Complete if Known</b>	
Sheet	1	of	2	Application Number	10/054,295
				Filing Date	January 18, 2002
				First Named Inventor	Thomas R. Cech
				Art Unit	1652
				Examiner Name	Malgorzata A. Walicka
				Attorney Docket Number	015389-002990US

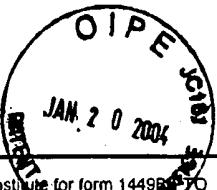
U.S. PATENT DOCUMENTS+					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
MR	A1	US-6,440,735 B1	08-27-2002	Gaeta	
MR	A2	US-6,444,650 B1	09-03-2003	Cech et al.	
MR	A3	US-6,517,834 B1	02-11-2003	Weinrich et al.	
MR	A4	US-6,608,188 B1	08-19-2003	Tsuchiya et al.	
MR	A5	US-6,627,619 B2	09-30-2003	Cech et al.	
MR	A6	US 2002-0164786 A1	11-07-2002	Cech et al.	
MR	A7	US 2002-0187471 A1	12-12-2002	Cech et al.	
MR	A8	US 2003-0009019 A1	01-09-2003	Cech et al.	
MR	A9	US 2003-0032075 A1	02-13-2003	Cech et al.	
MR	A10	US 2003-0059787 A1	03-27-2003	Cech et al.	
MR	A11	US 2003-0098344 A1	05-22-2003	Cech et al.	
MR	A12	US 2003-0100093 A1	05-29-2003	Cech et al.	
MR	A13	U.S. Application No. 09/432,503		Cech et al.	
MR	A14	U.S. Application No. 09/721,477		Cech et al.	
MR	A15	U.S. Application No. 09/721,506		Cech et al.	
MR	A16	U.S. Application No. 09/374,564		Cech et al.	implement

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
MR	B1	CA 2271718 A1	05-22-1998		<input type="checkbox"/>
	B2				<input type="checkbox"/>

Examiner Signature	M. Walicka	Date Considered	April 9, 2004
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Substitute for form 1449B-070

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

				<i>Complete if Known</i>
				Application Number 10/054,295
				Filing Date January 18, 2002
				First Named Inventor Thomas Cech
				Art Unit 1652
				Examiner Name Małgorzata A. Walicka
Sheet	2	of	2	Attorney Docket Number 015389-002990US

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	C1	ADAMS, MARK et al. "Initial Assessment of Human Gene Diversity and Expression Patterns Based Upon 83 Million Nucleotides of cDNA Sequence" <i>The Genome Directory: Supplement to Nature</i> 28 September 1995, 1995, pp. 3-174, Vol. 377, Issue 6547S.	
	C2		

Examiner Signature	Date Considered
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